

Applicants : Richard J. Zeman and Joseph D. Etlinger
Serial No. : 09/611,652
Filed : July 7, 2000
Page 2

Remarks

Rejections under 35 U.S.C. 102(b)

Claims 6, 7, 9 (now 44, 45 and 46, respectively), 37 and 40 stand rejected under 35 U.S.C. 102(b) as being anticipated by Sayers et al., Soc. Neurosci. Abst. 1998, 24: abstract 125.2. It is asserted in the rejection that Sayers et al. anticipates the rejected claims because that reference teaches the use of 1 mg/kg/day clenbuterol in treating spinal cord injury. Applicants respectfully request reconsideration and withdrawal of this rejection based on the following discussion.

The PTO asserts in the Advisory Action of February 3, 2003 that "Applicants' failure to distance the proffered claims from the anticipated treatment utility, renders such claims anticipated by the prior inherent use". Applicants would like to point out, however, that the claims do not read on Sayers et al. Sayers et al. only describes treatment for an injury at the T8 level of the spine, not at the "lower thoracic spine" as claimed. As discussed in the Reply dated March 25, 2002, "lower thoracic spine" is the T10-T12 level, not the T8 level. Thus, Sayers et al. does not describe the claimed administration of clenbuterol to a mammal with a lower thoracic spine injury, and therefore does not anticipate the rejected claims, which requires that the β_2 adrenergic agonist be administered "to a mammalian patient with spinal cord contusion injury in the lower thoracic spine". Withdrawal of the rejections under 35 U.S.C. 102(b) is therefore respectfully requested.

Rejections under 35 U.S.C. 103(a)

Claims 1, 4, 42 and 43 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sayers et al. Since applicants' arguments against this rejection were not addressed in the Advisory Action, they are repeated below.

Applicants : Richard J. Zeman and Joseph D. Etlinger
Serial No. : 09/611,652
Filed : July 7, 2000
Page 3

It is asserted in the office action that the rejected claims are obvious because “the effect of clenbuterol in the instant method of treatment is known and the optimization of result effect parameters ... is obvious as being within the skill of the artisan, absent evidence to the contrary.” Applicants respectfully request reconsideration and withdrawal of this rejection based on the following discussion.

As previously discussed, the instant invention first discloses that β_2 adrenergic agonists are effective in treating spinal cord contusion injury or motor neuron degeneration. Sayers et al. only discloses that clenbuterol is effective in treating a particular behavioral effect of a spinal cord contusion injury. However, Sayers et al. does not teach that clenbuterol or any other β_2 adrenergic agonist can treat the contusion injury itself. Thus, the instant specification teaches a previously unappreciated effect of β_2 adrenergic agonists in treating spinal cord contusion injuries and motor neuron degeneration. As such, the methods disclosed in Sayers et al. or any other cited prior art would not be understood to be effective at the claimed dose, which is 10-fold lower than the dose disclosed in Sayers et al., because, at the time of filing, the skilled artisan believed that β_2 adrenergic agonists were only effective on behavioral effects of a spinal cord contusion injury, and not on the injury itself. Thus, the instant specification establishes that β_2 adrenergic agonists could be used at a much lower dosage than previously appreciated because the specification establishes that the effects of β_2 adrenergic agonists on spinal cord contusion injuries are much more significant than previously appreciated.

Based on the above discussion, the applicants assert that the instant specification establishes that β_2 adrenergic agonists, including clenbuterol, have clear and convincing unexpected results on spinal cord injury and motor neuron degeneration that are of statistical and practical significance, because β_2 adrenergic agonists were previously only

Applicants : Richard J. Zeman and Joseph D. Etlinger
Serial No. : 09/611,652
Filed : July 7, 2000
Page 4

thought to affect behavioral effects of spinal cord injury. Establishing that β_2 adrenergic agonists affect the actual injury and not just the behavioral effects would lead the skilled artisan to understand that β_2 adrenergic agonists are effective at lower doses than appreciated.

Claims 1, 4, 6, 7 (now 44, 45 and 46, respectively), 9, 37, 40, 42 and 43 also stand rejected under 35 U.S.C. 103(a) as being unpatentable over Etlinger et al., WO99/09966. In response to applicants' Reply of December 30, 2003, the PTO asserts, "since clenbuterol is known to treat scoliosis, one of ordinary skill in the art would be reasonable expected to employ clenbuterol in the treatment of spinal cord injury".

In response to the above statement, applicants submit the enclosed Declaration of Sansar A. Sharma, Ph.D. under 37 C.F.R. 1.132, along with a Curriculum vitae of Dr. Sharma, establishing Dr. Sharma as a skilled artisan in the art of development and regeneration of the nervous system, and more specifically treatments for muscular and spinal cord injuries and diseases.

Dr. Sharma points out on page 3 of his declaration that "[t]he ability of clenbuterol to promote locomotor recovery following contusion injury involves a different type of injury" than scoliosis, and "[t]he effectiveness of clenbuterol in treating scoliosis resulting from spinal cord transection does not indicate that it would be effective in reducing tissue loss and paralysis resulting from contusion injury" because the latter effect is due to the effect of the drug, newly disclosed with the instant invention, in sparing injured spinal cord tissue.

It is clear from Dr. Sharma's declaration that Etlinger et al. would not lead the skilled artisan to understand that β_2 adrenergic agonists are effective in treating a spinal cord contusion injury or motor neuron degeneration because that reference does not teach that β_2 adrenergic agonists are effective in reducing tissues loss and paralysis

Applicants : Richard J. Zeman and Joseph D. Etlinger
Serial No. : 09/611,652
Filed : July 7, 2000
Page 5

resulting from contusion injury. For these reasons, applicants respectfully request withdrawal of the rejections under 35 U.S.C. 103(a) as being obvious over Etlinger et al.

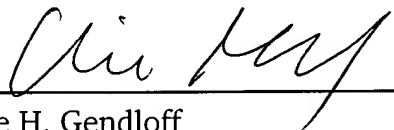
Conclusion

In light of the claim amendments and the above discussion, applicants respectfully request withdrawal of all current rejections and the search and examination of the claims encompassing the nonelected species. If there are any minor issues preventing this, applicants urge that the examiner contact the undersigned attorney.

Respectfully submitted,

AMSTER, ROTHSTEIN & EBENSTEIN
Attorneys for Applicant
90 Park Avenue
New York, New York 10016
(212) 697-5995

Dated: New York, New York
March 31, 2003

By: 
Elie H. Gendloff
Registration No. 44,704